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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,466	03/19/2001	Iichirou Inoue	3693-18	8980

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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER	
SCHECHTER, ANDREW M	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/810,466	INOUE ET AL.
	Examiner	Art Unit
	Andrew Schechter	2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *61-65,67-70,72-83,85-89,91-93,121,122,125-129,132-134 and 136-140* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/24/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 61-65,67-70,72-83,85-89,91-93,121,122,125-129,132-134 and 136-140.

DETAILED ACTION

Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 24 October 2005 has been entered.

Response to Arguments

2. Applicant's arguments filed 24 October 2005 have been fully considered but they are not persuasive.

The applicant argues [p. 14] that the non-prior-art article "Anti-Glare Design for High Definition LCDs" "evidences the unexpected advantages associated with an anti-glare film that combines an internal scattering layer and a scattering surface". This is not persuasive. The *Fujisawa* reference cited in a previous rejection discloses and teaches an anti-glare film that explicitly combines an internal scattering layer and a scattering surface; therefore, it does not appear that advantages from combining an internal scattering layer and a scattering surface were unexpected at the time of the invention.

The applicant notes [pp. 14-15] that claim 121 recites haze of at least 40, internal and surface scattering, and a particle/polymer refractive index difference of 0.03 to 0.10.) *Fujisawa* explicitly discloses the internal and surface scattering and the refractive index difference, but is silent on the haze value. The applicant argues that if the etching glass of *Mochizuki* were used (presumably instead of the two diffusive layers in *Fujisawa*) to get the haze value of at least 40, these other two conditions would no longer be met. This is not persuasive. *Mochizuki* teaches the use of an etching glass in one embodiment, but also provides a more general teaching that it is beneficial to have the haze value be at least 40 in an antiglare layer, whether it is made of etching glass or resin with particles. (This statement is based on an oral translation of the reference; a written translation has been ordered but was not ready by the date of this action. The written translation will be forwarded to the applicant as soon as the examiner receives it.)

The rejection is therefore based on using the layers of *Fujisawa* with their refractive index difference, and setting the haze value to at least 40 based on the teaching of *Mochizuki*. The question has been raised as to whether this is possible, or whether there is a conflict between the two limitations. It does not appear to the examiner that there is a conflict, since for instance the present application has a similar structure and simultaneously satisfies these two limitations.

The previous rejection of claim 121 in view of *Fujisawa* and *Mochizuki* is therefore maintained.

The applicant notes [p. 13] that claim 61 requires three conditions of the antiglare layer: haze of at least 40, image clarity of at least 10, and internal and surface scattering. (This is also true of claim 79.) The applicant argues that no single cited reference has all of these features. This is correct. *Fujisawa* discloses internal and surface scattering, but is silent on the haze and image clarity values, while *Maekawa* discloses internal and surface scattering and image clarity of at least 10, but is silent on the haze value. Nonetheless, the examiner still believes that the obviousness rejection is appropriate.

First, a haze value of at least 40 is taught by *Mochizuki* as discussed above. Second, not only does *Maekawa* disclose the other two limitations, it is clear from *Maekawa* [col. 3, lines 48-55, and Table 1, for instance] that values of image clarity below 10 are undesirable while values of image clarity above 10 (more preferably above 50) are desirable. *Maekawa* thus teaches having a high image clarity value.

Third, it has been suggested that the image clarity and haze are in inverse relation [see Interview Summary of 1 November 2005], implying that meeting both limitations might be difficult or non-obvious. This is not persuasive. Fig. 4c of "Surface Treatment Technology Technology for High Definition LCDs" (not prior art, but submitted by the applicant to discuss this question), suggests that for a haze of 40, an image clarity of 30 is possible, and an extrapolation suggests that the image clarity would remain above 10 for a significant range of haze values. In other words, it does not appear that meeting both limitations is arduous or that the overlap of the recited ranges is particularly narrow.

Fourth, it has been suggested that the diffusing layer in the *Jones* reference is not analogous art to the anti-glare layer of *Maekawa*, so using *Jones* to teach having the refractive index difference be within the range 0.03 to 0.10 is inappropriate. This is not persuasive. *Fujisawa* discloses an anti-glare layer which is clearly analogous to *Maekawa's* layer and the claimed layer, and like *Jones* it recites a refractive index difference [0.01 to 0.12] which closely overlaps the claimed range. Since the prior art references tend to concur on this range, it seems reasonable to the examiner to assume that the *Jones* layer is analogous, at least in this respect.

The previous rejections in view of *Maekawa* are therefore maintained.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 121, 122, 126-129, 136, and 140 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Fujisawa et al.*, U.S. Patent No. 6,002,464 in view of *Yamahara et al.,* U.S. Patent No. 5,844,649, and further in view of *Mochizuki et al.,* Japanese Patent Document No. 02-302725.

Fujisawa discloses a liquid crystal display device comprising a liquid crystal cell [23], a pair of polarizers [24], a backlight [22], an antiglare film [2, 3] provided on the

viewer side of one of the polarizers, with an internal scattering layer [2] and a scattering surface [3], wherein the internal scattering layer includes a polymer matrix [resin, abstract] and dispersed particles [col. 3, lines 37-40], with a refractive difference which is significant to cause internal scattering [col. 3, lines 20-25].

Fujisawa does not explicitly disclose that the liquid crystal cell includes a pair of substrates and liquid crystal. This is either inherent, or if not, is taught by *Yamahara* for an analogous device. It would have been obvious to one of ordinary skill in the art at the time of the invention to have substrates and liquid crystal, motivated by the desire to have a way to contain the liquid crystal, mount electrodes, etc.

Fujisawa discloses the refractive index difference being from 0.01 to 0.12, overlapping the recited range in claim 122. In such cases, a *prima facie* case of obviousness exists [see MPEP 2144.05, in re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976)]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use such a range, motivated by *Fujisawa's* teaching that produces the desired light scattering.

Fujisawa does not appear to disclose that the antiglare film has a haze value of equal to or greater than 40. *Mochizuki* teaches using an anti-glare layer, in an analogous device, specifically having a haze value of equal to or greater than 40 [see abstract]. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so in the above device, motivated by *Mochizuki's* teaching that this improves the narrowness of the angle of visibility which is a problem with LCDs [see abstract].

Claim 121 is therefore unpatentable.

The antiglare film is made of a single layer or a multi-layer structure, so claim 122 is also unpatentable. The internal scattering layer and scattering surface of the antiglare film are defined in different layers, so claim 140 is also unpatentable.

Fujisawa appears to be silent on the details of the LCD. *Yamahara* discloses the details of an LCD, and it would have been obvious to one of ordinary skill in the art at the time of the invention to use such an LCD, in particular the details of the phase compensator, motivated by *Yamahara*'s teaching that by providing proper compensation, the viewing angle characteristics are improved, and contrast is improved [see abstract].

Yamahara discloses a twist orientation liquid crystal layer [TN], and the refractive index anisotropy is 0.092 [col. 7, line 42, this implicitly includes at 550 nm, the center of the visible light spectrum], so claims 126 and 127 are also unpatentable. *Yamahara* discloses a phase compensation element between the cell and one of the polarizers [see Figs. 3 and 4], so claim 128 is also unpatentable. The phase compensation element comprises a discotic liquid crystal in an inclines or hybrid orientation [col. 7, lines 46-53], so claim 129 is also unpatentable. Claim 136 is analogous to claim 126, so it is also unpatentable.

5. Claims 125, 132-134, and 137-139 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Fujisawa, Yamahara et al.,* and *Mochizuki* as applied above, and further in view of *Maekawa,* U.S. Patent No. 6,164,785.

Fujisawa, Yamahara et al., and *Mochizuki* are silent on the image clarity. *Maekawa* teaches [see col. 3, lines 48-55 and Table 1, for instance] that for such an anti-glare layer, values of image clarity below 10 are undesirable while values of image clarity above 10 (more preferably above 50) are desirable. It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to have the image clarity of the above anti-glare layer be at least 10 when measured with a 0.5 mm optical comb. Claims 125 and 132 are therefore unpatentable.

Yamahara also discloses [col. 8, lines 13-24, see Fig. 3] the phase compensation element has the index ellipsoid with na, nb, and nc orthogonal, and that the phase compensation element has na=nc>nb, a-axis parallel to the plane, and b-axis inclined to the normal, so claims 133 and 134 are unpatentable. The b-zxis forms an angle between 15 and 75 degrees with the normal [col. 8, line 6] so claim 137 is unpatentable, and (na-nb)xd is between 80nm and 250nm [col. 8, lines 19-20], so claim 138 is unpatentable. Claim 139 is analogous to claim 127, so claim 139 is also unpatentable.

6. Claims 61-65, 67-70, 72-83, 85-89, 91-93, 121, 122, 125-129, 132-134, 136-139 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Yamahara et al.,* U.S. Patent No. 5,844,649 in view of *Maekawa,* U.S. Patent No. 6,164,785 in view of *Jones et al.,* U.S. Patent No. 5,949,506, and further in view of *Mochizuki et al.,* Japanese Patent Document No. 02-302725.

Yamahara discloses [see Fig. 1, for instance] a liquid crystal cell [1] with substrates and liquid crystal, and a pair of polarizers [4 and 5]. It does not appear to explicitly disclose a backlight, but it is clearly a transmissive LCD; *Jones* does disclose a

backlight and it would have been obvious to one of ordinary skill in the art at the time of the invention to use such a backlight in the device of *Yamahara*, motivated by the desire to provide a bright display.

Yamahara does not explicitly disclose an antiglare layer. *Maekawa* does disclose an antiglare layer [1] for use in an analogous device. The anti-glare layer [see Fig. 1] has an internal scattering layer and a scattering surface, wherein the internal scattering layer includes a polymer matrix and particles dispersed therein [abstract]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the antiglare layer of *Maekawa* on the viewer's side of the display device of *Yamahara,* motivated by *Maekawa's* teaching that it provides an antiglare film "which can maintain images clear and does not cause the scintillation of images" [see abstract] (and more simply, that it prevents glare as the name suggests when placed so).

Claim 121 also recites having a difference in refractive index between the particles and the polymer matrix to cause internal scattering. This could be taken as an inherent feature, since without the refractive index mismatch, there would be no anti-glare effect (which is there even if the anti-glaring layer were leveled so that there were no surface scattering anti-glare effect [col. 6, lines 46ff.].) Alternatively, *Jones* discloses an analogous diffusing layer and teaches that the difference in refractive particles should be preferably from about 0.05-0.15 [col. 6, lines 20-41]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use such a value, motivated by *Jones*'s teaching that this range "allows the beads or particles to transform the layer into a diffuser in an efficient and productive manner".

Maekawa discloses that the antiglare film is a single layer, but does not disclose the difference in refractive indices being between 0.03 and 0.10. *Jones'* range 0.05-0.15 overlaps with the claimed range; in such cases a *prima facie* case of obviousness exists [see MPEP 2144.05, in re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

The above references do not appear to disclose that the antiglare film has a haze value of equal to or greater than 40. *Mochizuki* teaches using an anti-glare layer, in an analogous device, specifically having a haze value of equal to or greater than 40 [see abstract]. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so in the above device, motivated by *Mochizuki's* teaching that this improves the narrowness of the angle of visibility which is a problem with LCDs [see abstract].

Claims 121 and 122 are therefore unpatentable.

Also, the image clarity for *Maekawa's* anti-glare layer, measured using a 0.5 mm optical comb, is 59 [see Table 1], so claim 125 is unpatentable.

Yamahara discloses a twist orientation liquid crystal layer [TN], and the refractive index anisotropy is 0.092 [col. 7, line 42, this implicitly includes at 550 nm, the center of the visible light spectrum], so claims 126 and 127 are also unpatentable. *Yamahara* discloses a phase compensation element between the cell and one of the polarizers [see Figs. 3 and 4], so claim 128 is also unpatentable. The phase compensation element comprises a discotic liquid crystal in an inclines or hybrid orientation [col. 7, lines 46-53], so claim 129 is also unpatentable. Claim 132 is analogous to claim 125,

so claim 132 is also unpatentable. Claim 136 is analogous to claim 126, so it is also unpatentable.

Yamahara also discloses [col. 8, lines 13-24, see Fig. 3] the index ellipsoid with na, nb, and nc orthogonal, and that the phase compensation element has na=nc>nb, a-axis parallel to the plane, and b-axis inclined to the normal, so claims 133 and 134 are unpatentable. The b-zxis forms an angle between 15 and 75 degrees with the normal [col. 8, line 6] so claim 137 is unpatentable, and (na-nb)xd is between 80nm and 250nm [col. 8, lines 19-20], so claim 138 is unpatentable. Claim 139 is analogous to claim 127, so claim 139 is also unpatentable.

All the limitations of claims 61, 62, 64, 65, 67-70, and 72-77 have been addressed above, so claims 61, 62, 64, 65, 67-70, and 72-77 are unpatentable. Claim 63 recites the additional limitation that the liquid crystal is held in a matrix obtained by cross-linking an organic polymer, which is disclosed by *Yamahara* [col. 7, lines 50-53], so claim 63 is unpatentable. Claim 78 recites the additional limitation of first and second phase compensation elements on opposite sides of the liquid crystal layer, which is shown in *Yamahara*'s Fig. 4, so claim 78 is unpatentable.

All the limitations of claims 79, 81-83, 85, and 89 have been addressed above, so claims 79, 81-83, 85, and 89 are unpatentable. Claim 80 recites the additional limitation that the direction corresponding to na is substantially parallel to the layer plane of the liquid crystal, which is disclosed by *Yamahara* in Fig. 3, so claim 80 is unpatentable. All the limitations of claims 86-88 and 91-93 have been addressed above, so claims 86-88 and 91-93 are also unpatentable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andrew Schechter
Primary Examiner
Technology Center 2800
8 January 2006